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G70-D GENERAL PERMIT ENGINEERING EVALUATION

PREVENTION AND CONTROL OF AIR POLLUTION IN REGARD TO THE CONSTRUCTION, MODIFICATION, RELOCATION, ADMINISTRATIVE UPDATE AND OPERATION OF NATURAL GAS PRODUCTION FACILITIES LOCATED AT THE WELL SITE

APPLICATION NO.: G70-D**038C**	FACILITY ID: **095-00036**

☐ CONSTRUCTION
☒ MODIFICATION
☐ RELOCATION
☐ CLASS I ADMINISTRATIVE UPDATE
☐ CLASS II ADMINISTRATIVE UPDATE

BACKGROUND INFORMATION

Name of Applicant (as registered with the WV Secretary of State's Office): CNX Gas Company LLC

Federal Employer ID No. (FEIN): 550738862

Applicant's Mailing Address: 1000 CONSOL Energy Drive
City: Canonsburg State: PA ZIP Code: 15317

Facility Name: SHR1

Operating Site Physical Address: WV 18 (near Purgatory Run Road)
If none available, list road, city or town and zip of facility.
City: Alma Zip Code: 26230 County: Tyler

Latitude & Longitude Coordinates (NAD83, Decimal Degrees to 5 digits):
Latitude: 39.41487°
Longitude: -80.84602°

SIC Code: 1311 NAICS Code: 211111	Date Application Received: March 2, 2017
Fee Amount: $500	Date Fee Received: March 2, 2017
Applicant Ad Date: February 28, 2017	Newspaper: The Herald Record
Date Application Complete: May 12, 2017	Due Date of Final Action: June 26, 2017

Engineer Assigned: David Keatley

This permit registration supersedes and replaces permit registration G70-A038B. Installation and operation of one (1) 30-bbl drip tank. Removal of: five (5) 400-bbl condensate tanks, five (5) 400-bbl produced water tanks, one (1) 265-bhp compressor engine, and one (1) 5,833-scf/hr vapor combustor. Modification of one (1) 26.2-mmBtu/hr flare.

PROCESS DESCRIPTION

Raw natural gas from six wells goes to six (6) 1.0-mmBtu/hr gas production units (GPUs). The burner on the GPUs heats the raw natural gas to encourage phase separation. The gas from the GPUs exits the facility via pipeline. The produced water from the GPUs goes to five (5) 400-bbl produced water tanks. The condensate from the GPUs goes to low-pressure separator where the condensate is heated by one (1) 0.75-mmBtu/hr low-pressure separator heater to further encourage phase separation. The condensate from the low-pressure separator goes to five (5) 400-bbl condensate tanks. The vapors from the low-pressure separator go to a liquid knockout. The liquid from the knockout go to a 30-bbl drip tank. The vapors from the liquid knockout will be controlled by one (1) 26.2-mmBtu/hr flare. The vapors from the produced water tanks, condensate tanks, and drip tank are controlled by one (1) 8.69-mmBtu/hr vapor combustor. The liquid from the condensate tanks will be loaded into trucks at a maximum rate of 30,660,000 gallons/year and exit the facility. The liquid from the produced water tanks will be loaded into trucks at a maximum rate of 38,325,000 gallons/year and exit the facility. The liquid from the drip tank will be loaded into trucks at a maximum rate of 337,260 gallons/year. A 0.03-mmBtu/hr thermoelectric generator is on site to provide electrical power for the facility.

SITE INSPECTION

Site Inspection Date: December 3, 2015
Site Inspection Conducted By: Douglas Hammell
Results of Site Inspection: The facility was deemed in compliance.
Did Applicant meet Siting Requirements? Yes
If applicable, was siting criteria waiver submitted? Not Applicable
Directions to Facility: Traveling on I-77 take exit 176. Travel east on US-50 for approximately 32 miles. Turn onto WV 74 and travel north for approximately 11 miles. Turn onto WV 18 and travel for approximately 3 miles. The access road is on the left.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

The following table indicates which methodology was used in the emissions determination:

Emission Unit ID#	Process Equipment	Calculation Methodology (e.g. ProMax, GlyCalc, mfg. data, AP-42, etc.)
1S-TK1 through 1S-TK5	Condensate Tanks	Promax using a liquid sample from Majorsville and gas analysis from Shirley 3.
1S-TK6 through 1S-TK10	Produced Water Tanks	Promax using a liquid sample from Majorsville and gas analysis from Shirley 3.
4S-GPU1 through 4S-GPU6	Gas Processsing Units	EPA AP-42
5S-LP	LP Separator Heater	EPA AP-42
6S-TL1, 13S-TL3, and 7S-TL2	Liquid Loading	EPA AP-42 equation
8S-COMB1 and 10S-COMB	Vapor Combustor	EPA AP-42
12S-TEGEN	Thermoelectric Generator	EPA AP-42
12S-TK11	Drip Tank	Promax using a liquid sample from Majorsville and gas analysis from Shirley 3.

The total facility PTE for the facility (excluding fugitive emissions) is shown in the following table:

Pollutant	Facility Wide PTE (tons/year)
Nitrogen Oxides	13.96
Carbon Monoxide	40.83
Volatile Organic Compounds	78.98
Particulate Matter	0.47
Particulate Matter-10/2.5	0.47
Sulfur Dioxide	0.04
Benzene	0.04
Toluene	0.07
Xylenes	0.03
n-Hexane	2.86
Total HAPs	3.05
Carbon Dioxide Equivalent	21,548

Emission Point ID	Emission Unit ID	Emission Source	Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (tpy)
8E-COMB1	1S-TK1 through 1S-TK10, 6S-TL1, 7S-TL2, 13S-TL3, 8S-COMB1, 12S-TK11 and 9S-PILOT	Vapor Destruction Unit (Controlling Condensate Tanks, Produced Water Tanks, Pilot, and Liquid Loading)	Nitrogen Oxides	0.86	3.75
			Carbon Monoxide	0.72	3.15
			Volatile Organic Compounds	16.17	48.64
			Total Particulate Matter	0.07	0.29
			Sulfur Dioxide	0.01	0.02
			n-Hexane	0.58	1.79
			CO_2e	1,049	4,596
10E-COMB	10S-COMB, 11S-PILOT, and 6S-LP	Flare (Controlling Low-Pressure Separator)	Nitrogen Oxides	1.79	7.85
			Carbon Monoxide	8.15	35.68
			Volatile Organic Compounds	0.05	0.22
			CO_2e	3,076	13,472
4E-GPU1 through 4E-GPU9	4S-GPU1 through 4S-GPU9	Gas Production Unit 1.0 mmBtu/hr (emissions per each)	Nitrogen Oxides	0.08	0.35
			Carbon Monoxide	0.07	0.29
			Volatile Organic Compounds	0.01	0.02
			Total Particulate Matter	0.01	0.03
			CO_2e	117	513
5E-LP	5S-LP	Low-Pressure Separator Heater 0.75 mmBtu/hr	Nitrogen Oxides	0.06	0.26
			Carbon Monoxide	0.05	0.22
			Volatile Organic Compounds	<0.01	0.01
			Total Particulate Matter	<0.01	0.02
			CO_2e	88	385

13E-TL3	13S-TL3	Uncaptured Drip Tank Liquid Loading 337,260 gallons/year	Volatile Organic Compounds	1.47	0.38
6E-TL1 and 7E-TL2	6S-TL1 and 7S-TL2	Uncaptured Liquid Loading 30,660,000 gallons/year And 38,325,000 gallons/year	Volatile Organic Compounds	113.89	29.61
			n-Hexane	3.90	1.01
			Benzene	0.04	0.01
			Toluene	0.07	0.02

REGULATORY APPLICABILITY

45CSR2 (Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers)

The purpose of 45CSR2 (Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers) is to establish emission limitations for smoke and particulate matter which are discharged from fuel burning units.

45CSR2 states that any fuel burning unit that has a heat input under ten (10) MMBTU/hr is exempt from Sections 4 (weight emission standard), 5 (control of fugitive particulate matter), 6 (registration), 8 (testing, monitoring, recordkeeping, reporting) and 9 (startups, shutdowns, malfunctions). However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date. If the individual heat input of all of the proposed fuel burning units are below 10 MMBTU/hr, these units are exempt from the aforementioned sections of 45CSR2. However, the registrant would be subject to the opacity requirements in 45CSR2, which is 10% opacity based on a six minute block average. Fuel burning units greater than 10 MMBTU/hr are ineligible for registration under General Permit G70-D

Emission Unit ID#	Emission Unit Description	Maximum Design Heat Input (MDHI) (MMBTU/hr)
4S-GPU1 through 4S-GPU6	Gas Processsing Units	1.0 (each)
5S-LP	LP Separator Heater	0.75
12S-TEGEN	Thermoelectric Generator	0.03

45CSR6 (To Prevent and Control Air Pollution from the Combustion of Refuse)

45CSR6 prohibits open burning, establishes emission limitations for particulate matter, and establishes opacity requirements. Sources subject to 45CSR6 include completion combustion devices, enclosed combustion devices, and flares.

The facility-wide requirements of the general permit include the open burning limitations §§45-6-3.1 and 3.2.

All completion combustion devices, enclosed combustion devices, and flares are subject to the particulate matter weight emission standard set forth in §45-6-4.1; the opacity requirements in §§45-6-4-3 and 4-4; the visible emission standard in §45-6-4.5; the odor standard in §45-6-4.6; and, the testing standard in §§45-6-7.1 and 7.2.

Enclosed combustion control devices and flares that are used to comply with emission standards of NSPS, Subpart OOOO are subject to design, operational, performance, recordkeeping and reporting requirements of the NSPS regulation that meet or exceed the requirements of 45CSR6.

Emission Unit ID#	Maximum Design Heat Input (MDHI) (MMBTU/hr)	Subject to Weight Emission Standard?	Control Efficiency Claimed by Registrant	Provide Justification how 45CSR6 is met.
8S-COMB1	8.69	☒ Yes ☐ No	98%	With a maximum capacity of 315.3 lb/hr the allowable emission rate for total particulate matter is 0.86. The estimated total particulate matter from this vapor combustor is 0.07 which is less than the allowable, so this rule should be met.
10S-COMB	26.2	☒ Yes ☐ No	98%	With a maximum capacity of 887.31 lb/hr the allowable emission rate for total particulate matter

				is 2.41. The estimated total particulate matter from this flare is negligible which is less than the allowable, so this rule should be met.

45CSR10 (To Prevent and Control Air Pollution from the Emission of Sulfur Oxides)

45CSR10 establishes emission limitations for SO_2 emissions which are discharged from stacks of fuel burning units. A "fuel burning unit" means and includes any furnace, boiler apparatus, device, mechanism, stack or structure used in the process of burning fuel or other combustible material for the primary purpose of producing heat or power by indirect heat transfer. Sources that meet the definition of "Fuel Burning Units" per 45CSR10-2.8 include GPUs, in-line heaters, heater treaters, and glycol dehydration unit reboilers.

Fuel burning units less than 10 MMBtu/hr are exempt. The sulfur dioxide emission standard set forth in 45CSR10 is generally less stringent than the potential emissions from a fuel burning unit for natural gas. The SO_2 emissions from a fuel burning unit will be listed in the G70-D permit registration at the discretion of the permit engineer on a case-by-case basis. Issues such as non-attainment designation, fuel use, and amount of sulfur dioxide emissions will be factors used in this determination. Fuel burning units greater than 10 MMBTU/hr are ineligible for registration under General Permit G70-D

Fuel burning units burning natural gas are exempt from Section 8 (Monitoring, Recording and Reporting) as well as interpretive rule 10A. The G70-D eligibility requirements exclude from eligibility any fuel burning unit that does not use natural gas as the fuel; therefore, there are no permit conditions for 45CSR10.

Emission Unit ID#	Emission Unit Description	Maximum Design Heat Input (MDHI) (MMBTU/hr)
4S-GPU1 through 4S-GPU6	Gas Processsing Units	1.0 (each)
5S-LP	LP Separator Heater	0.75
12S-TEGEN	Thermoelectric Generator	0.03

45CSR13 (Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation)

45CSR13 applies to this source due to the fact that the applicant is defined as a "stationary source" under 45CSR13 Section 2.24.b. *Stationary source* means, for the purpose of this rule, any building, structure, facility, installation, or emission unit or combination thereof, excluding any emission unit which meets or falls below the criteria delineated in Table 45-13B which: (a) is subject to any substantive requirement of an emission control rule promulgated by the Secretary; (b) discharges or has the potential to discharge more than six (6) pounds per hour and ten (10) tons per year, or has the potential to discharge more than 144 pounds per calendar day, of any regulated air pollutant; (c) discharges or has the potential to discharge more than two (2) pounds per hour or five (5) tons per year of hazardous air pollutants considered on an aggregated basis; (d) discharges or has the potential to discharge any air pollutant(s) listed in Table 45-13A in the amounts shown in Table 45-13A or greater; or, (e) an owner or operator voluntarily chooses to be subject to a construction or modification permit pursuant to this rule, even though not otherwise required to do so. 45CSR13 has an original effective date of June 1, 1974.

The applicant meets the definition of a stationary source because (check all that apply):

☒ Subject to a substantive requirement of an emission control rule promulgated by the Secretary.
☒ Discharges or has the potential to discharge more than six (6) pounds per hour and ten (10) tons per year, or has the potential to discharge more than 144 pounds per calendar day, of any regulated air pollutant.
☐ Discharges or has the potential to discharge more than two (2) pounds per hour or five (5) tons per year of hazardous air pollutants considered on an aggregated basis.

☐ Discharges or has the potential to discharge any air pollutant(s) listed in Table 45-13A in the amounts shown in Table 45-13A or greater.
☐ Voluntarily chooses to be subject to a construction or modification permit pursuant to this rule, even though not otherwise required to do so.

General Permit G70-D Registration satisfies the construction, modification, relocation and operating permit requirements of 45CSR13. General Permit G70-D sets forth reasonable conditions that enable eligible registrants to establish enforceable permit limits.

Section 5 of 45CSR13 provides the permit application and reporting requirements for construction of and modifications to stationary sources. No person shall cause, suffer, allow or permit the construction, modification, relocation and operation of any stationary source to be commenced without notifying the Secretary of such intent and obtaining a permit to construct, modify, relocate and operate the stationary source as required in the rule or any other applicable rule promulgated by the Secretary.

If applicable, the applicant meets the following (check all that apply):

☐ Construction
☒ Modification
☐ Class I Administrative Update (45CSR13 Section 4.2.a)
☐ Class II Administrative Update (45CSR13 Section 4.2.b)

45CSR16 (Standards of Performance for New Stationary Sources Pursuant to 40 CFR Part 60)

45CSR16 applies to all registrants that are subject to any of the NSPS requirements described in more detail in the Federal Regulations section. Applicable requirements of NSPS, Subparts IIII, JJJJ, OOOO and OOOOa are included in General Permit G70-D.

The applicant is subject to:
☐ 40CFR60 Subpart IIII
☐ 40CFR60 Subpart JJJJ
☒ 40CFR60 Subpart OOOO
☐ 40CFR60 Subpart OOOOa

45CSR22 (Air Quality Management Fee Program)

45CSR22 is the program to collect fees for certificates to operate and for permits to construct or modify sources of air pollution. 45CSR22 applies to all registrants. The general permit fee of $500 is defined in 45CSR13. In addition to the application fee, all applicants subject to NSPS requirements or NESHAP requirements shall pay additional fees of $1,000 and $2,500, respectively.

Registrants are also required to obtain and have in effect a valid certificate to operate in accordance with 45CSR22 §4.1. The fee group for General Permit G70-D is 9M (all other sources) with an annual operating fee of $200.

40CFR60, Subpart OOOO (Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced after August 23, 2011, and on or before September 18, 2015)

EPA published its New Source Performance Standards (NSPS) and air toxics rules for the oil and gas sector on August 16, 2012. EPA published amendments to the Subpart on September 23, 2013 and June 3, 2016.

40CFR60 Subpart OOOO establishes emission standards and compliance schedules for the control of volatile organic compounds (VOC) and sulfur dioxide (SO_2) emissions from affected facilities that commence construction, modification or reconstruction after August 23, 2011 and on or before September 18, 2015. The affected sources which commence construction, modification or reconstruction after August 23, 2011 and on or before September 18, 2015 are subject to the applicable provisions of this Subpart as described below:

Gas well affected facilities are included in General Permit G70-D in Section 5.0.
Are there any applicable gas well affected facilities? ☒ Yes ☐ No
If Yes, list.

API Number	Date of Flowback	Date of Well Completion	Green Completion and/or Combustion Device
4709502109	10/15/2014	5/1/2014	Green
4709502110	10/15/2014	4/30/2014	Green
4709502111	10/15/2014	6/9/2014	Green
4709502112	10/15/2014	6/3/2014	Green
4709502113	10/15/2014	6/3/2014	Green
4709502114	10/15/2014	5/23/2014	Green

Each centrifugal compressor affected facility, which is a single centrifugal compressor using wet seals that is located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment. A centrifugal compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility under this Subpart.

Each reciprocating compressor affected facility, which is a single reciprocating compressor located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment. A reciprocating compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility under this subpart.

Pneumatic controllers affected facilities are included in General Permit G70-D, Section 10.0.
Are there any applicable pneumatic controller affected facilities? ☐ Yes ☒ No

For the natural gas production segment (between the wellhead and the point of custody transfer to the natural gas transmission and storage segment and not including natural gas processing plants), each pneumatic controller affected facility, which is a single continuous bleed natural gas-driven pneumatic controller operating at a natural gas bleed rate greater than 6 scfh.

Requirements for storage vessel affected facilities are included in General Permit G70-D, Section 7.0. Determination of storage vessel affected facility status is included in Section 6.0 of General Permit G70-D.
Are there any applicable storage vessel affected facilities? ☐ Yes ☒ No
If No, list any emission reduction devices and control efficiencies used to avoid 40CFR60 Subpart OOOO.
Vapor combustor 8S-COMB1 and flare 10S-COMB has a control efficiency of the vapors from the associated tanks by at least 98%.

Each storage vessel affected facility, which is a single storage vessel located in the oil and natural gas production segment, natural gas processing segment or natural gas transmission and storage segment, and has the potential for VOC emissions equal to or greater than 6 tpy as determined according to this section by October 15, 2013 for Group 1 storage vessels and by April 15, 2014, or 30 days after startup (whichever is later) for Group 2 storage vessels. A storage vessel affected facility that subsequently has its potential for VOC emissions decrease to less than 6 tpy shall remain an affected facility under this subpart.

40CFR60, Subpart OOOOa (Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced after September 18, 2015)

EPA published its New Source Performance Standards (NSPS) and air toxics rules for the oil and gas sector on August 16, 2012. EPA published amendments to the Subpart on September 23, 2013 and June 3, 2016.

40CFR60 Subpart OOOOa establishes emission standards and compliance schedules for the control of the pollutant greenhouse gases (GHG). The greenhouse gas standard in this subpart is in the form of a limitation on emissions of methane from affected facilities in the crude oil and natural gas source category that commence construction, modification or reconstruction after September 18, 2015. This subpart also establishes emission standards and compliance schedules for the control of volatile organic compounds (VOC) and sulfur dioxide (SO_2) emissions from affected facilities that commence construction, modification or reconstruction after September 18, 2015. The effective date of this rule is August 2, 2016.

For each well site, the registrant must reduce GHG (in the form of a limitation on emissions of methane) and VOC emissions by complying with fugitive emissions monitoring as required in §60.5397a and the alternative means of emission limitations in §60.5398a.

Gas well affected facilities are included in General Permit G70-D in Section 5.0.
Are there any applicable gas well affected facilities? ☐ Yes ☒ No

SOURCE AGGREGATION DETERMINATION

"Building, structure, facility, or installation" is defined as all the pollutant emitting activities which belong to the same industrial grouping, are located on one or more contiguous and adjacent properties, and are under the control of the same person.

Is there equipment and/or activities used for onshore oil and natural gas production that are located on the same site, or on sites that share equipment and are within ¼ mile of each other?
☐ Yes ☒ No
Is this equipment and/or activities under "common control"?
☐ Yes ☒ No
Do these facilities share the same two (2) digit SIC code?
☒ Yes ☐ No

Final Source Aggregation Decision.
☒ Source not aggregated with any other source.
☐ Source aggregated with another source. List Company/Facility Name:

RECOMMENDATION TO DIRECTOR

The information provided in the permit application, including all supplemental information received, indicates the applicant meets all the requirements of applicable regulations and the applicant has shown they meet the eligibility requirements of General Permit G70-D. Therefore, impact on the surrounding area should be minimized and it is recommended that the facility should be granted registration under General Permit G70-D.

Permit Engineer Signature: David Keatley
Name and Title: David Keatley - NSR Permitting
Date: May 24, 2017